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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,699	11/21/2005	Jose Miguel Mulet Salort	BJS-4982-4	8024

23117 7590 07/10/2007  
NIXON & VANDERHYE, PC  
901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

EXAMINER
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KUMAR, VINOD

ART UNIT	PAPER NUMBER
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1638

MAIL DATE	DELIVERY MODE
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07/10/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/551,699

**Applicant(s)**

MULET SALORT ET AL.

**Examiner**

Vinod Kumar

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status.

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-30 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-3, drawn to a method for altering plant characteristics comprising increasing expression of a nucleic acid sequence encoding plant class-2-non-symbiotic haemoglobin in said plant.

Group II, claim(s) 4-7, drawn to a method for increasing abiotic stress tolerance of a plant, comprising increasing expression in a plant of a nucleic acid sequence encoding plant class-2 non-symbiotic haemoglobin.

Group III, claim(s) 9, 11-14, 16, 22-26, drawn to an isolated nucleic acid sequence encoding class-2 non-symbiotic haemoglobin, a nucleic acid construct comprising said sequence, a host cell or a method of making a transgenic plant comprising said nucleic acid sequence, or wherein said nucleic acid sequence is SEQ ID NO: 1 encoding SEQ ID NO: 2, or wherein said nucleic acid sequence is used in abiotic stress tolerance of a plant.

Group IV, claim(s) 8, 15, 17-21, drawn to plant cell, or plant comprising a nucleic acid sequence encoding class-2 non-symbiotic haemoglobin, or wherein increased expression of said nucleic acid sequence results in increased yield, increased biomass, increased cell division, and increased tolerance to osmotic stress, or wherein said nucleic acid is SEQ ID NO: 3 encoding SEQ ID NO: 4, or wherein said nucleic acid is used in increasing plant characteristics and osmotic stress tolerance in a plant.

Group V, claim 10, drawn to an isolated plant class-2 non-symbiotic haemoglobin.

Group VI, claim 27, drawn to the use of haemoglobin or a nucleic acid sequence encoding haemoglobin for altering stress tolerance of yeast.

Group VII, claim 28, drawn to the use of a nucleic acid sequence encoding plant class-2 non-symbiotic haemoglobin and/or of an amino acid sequence in therapeutic or diagnostic compositions.

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Group VIII, claim 29, drawn to the use of a nucleic acid sequence encoding plant class-2 non-symbiotic haemoglobin and/or of an amino acid sequence in modulating levels of O<sub>2</sub> or other compounds.

Group IX, claim 30, drawn to the use of a nucleic acid sequence encoding plant class-2 non-symbiotic haemoglobin and/or of an amino acid sequence in modifying signal transduction pathways.

The inventions listed as Groups I-IX do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The technical feature linking Groups I-IX appears to be a nucleic acid sequence encoding class-2 symbiotic haemoglobin. However, Town et al. (NCBI, GenBank, Sequence Accession No. NM\_111887, Published August 20, 2002) teach a nucleotide sequence encoding *Arabidopsis* class-2 non-symbiotic haemoglobin.

Therefore the technical feature linking the inventions of Groups I-IX does not constitute a special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art.

Applicants are reminded that different nucleotide sequences and amino acid sequences are structurally distinct chemical compounds and are unrelated to one another. These genes encoding different types of enzymes are thus deemed to normally constitute different inventive concepts.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinod Kumar whose telephone number is (571) 272-4445. The examiner can normally be reached on 8.30 a.m. to 5.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



PHUONG T. BUI  
PRIMARY EXAMINER